Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Alkanes

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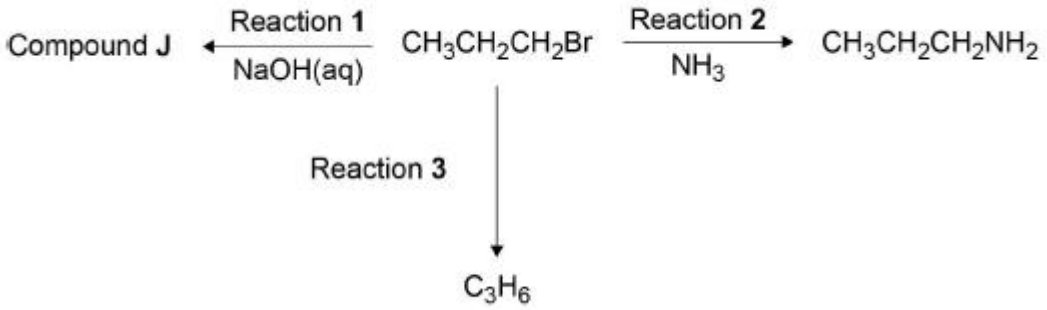
Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Q1.

The diagram shows some compounds made from a halogenoalkane.



(a) Draw the displayed formula of compound **J**.

(1)

(b) Name the mechanism for Reaction **2** and give an essential condition used to ensure that $CH_3CH_2CH_2NH_2$ is the major product.

Name of mechanism _____

Condition _____

(2)

(c) Calculate the mass, in grams, of $CH_3CH_2CH_2NH_2$ produced from 25.2 g of $CH_3CH_2CH_2Br$ in Reaction **2** assuming a 75.0% yield.

Give your answer to the appropriate number of significant figures.

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Mass _____ g

(3)

(d) When Reaction **2** is carried out under different conditions, a compound with molecular formula $C_9H_{21}N$ is produced.

Draw the skeletal formula of the compound.

Identify the functional group in the compound including its classification.

Skeletal formula

Functional group including classification _____

(2)

(e) Identify the reagent and conditions used in Reaction **3**.

_____

(1)

(f) Name and outline a mechanism for Reaction 3.

Name of mechanism _____

Mechanism

(4)

(Total 13 marks)

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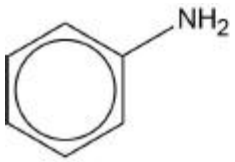
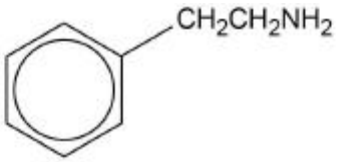
Q2.

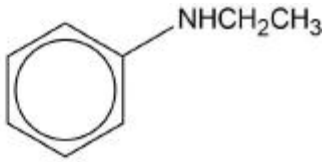
This question is about the three amines, **E**, **F** and **G**.



E



F



G

(a) Amines **E**, **F** and **G** are weak bases.

Explain the difference in base strength of the three amines and give the order of increasing base strength.

(6)

(b) Amine **F** can be prepared in a three-step synthesis starting from methylbenzene.

Suggest the structures of the two intermediate compounds.

For each step, give reagents and conditions only. Equations and mechanisms are **not** required.

(5)

(Total 11 marks)

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